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REISSUE PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of: )  
U.S. Patent No. 5,464,551 :  
Issued: November 7, 1995 : Examiner: Not Yet Assigned  
Inventor: GERBRAND DEETMAN : Previous Examiner: Ogden  
Assignee: Monsanto Company : Art Unit: Not Yet Assigned  
Reissue Control No.: Unknown : Previous Art Unit: 1105  
Filed: Herewith :  
For: STABILIZED PHOSPHATE :  
ESTER-BASED FUNCTIONAL :  
FLUID COMPOSITIONS : November 4, 1997

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

DECLARATION AND POWER OF ATTORNEY OF GERBRAND DEETMAN

Gerbrand Deetman, residing at 11 River Valley Court, St. Charles, MO 63303, hereby declares as follows:

1. I have been employed by Monsanto Company for more than 30 years since obtaining my B.S. from Washington University in St. Louis, MO. I am now retired and employed part-time as a consultant to Monsanto Company ("Monsanto"). During my employment with Monsanto I have worked in various areas of research on specialty fluids, including approximately 8 years in the research and development of Monsanto's Skydrol® functional fluid compositions, the subject matter of the present application.

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2. I make this declaration in support of Monsanto's application for reissue of U.S. Patent No. 5,464,551 ("the '551 patent"). I am the original and first inventor of the invention described and claimed in the '551 patent, and in the foregoing specification of this reissue application. I have read and understand the contents of the specification and claims for the reissue application.

3. I believe that the '551 patent is partially inoperative because I claimed less than I had the right to claim, through error made without deceptive intent. The error and the lack of deceptive intent are more fully described in the following paragraphs and in the accompanying Declarations of Kenneth D. Goetz and Wendell W. Brooks.

4. At the time of my invention Monsanto marketed tri-n-butyl phosphate ester-based hydraulic fluids under its trademark, Skydrol®. At least partly because I became aware of potential toxicity issues regarding tri-n-butyl phosphate, I began researching replacement candidates for those phosphate esters in Monsanto's functional fluid compositions. As part of that work, I discovered that isoalkyl substituted phosphate esters provided base stock formulations for hydraulic fluids that exhibited substantial performance improvements over previously known formulations and did not demonstrate the toxicity of tri-n-butyl phosphate esters. I also investigated several additive package formulations that would provide for a stable hydraulic fluid when run at higher temperatures for extended periods of time.

5. On June 11, 1992 a patent application entitled "Functional Fluid" was filed in my name that contained a description and experimental examples of phosphate ester-based functional fluid compositions and claims to the functional fluid compositions (i.e., base stock plus additive package). It was my understanding that the claims were directed to potential commercial embodiments of the invention, comprising both improved base stock formulation and the improved additive package. However, as demonstrated by the disclosure of that application my invention also relates to the use of the improved additive package in functional fluid compositions that did not contain the improved base stock formulation. For example, the original application, at page 9, lines 18-23, states:

[m]oreover, it has been found that the additive combinations of this invention are effective in enhancing the properties of base stock compositions previously known in the art or otherwise differing from the preferred base stock of the functional fluids of this invention.

I also note Table 1 and the accompanying text of the original application at page 21, lines 27-29, which states "[t]he additive combination is also effective in combination with other ranges of base stock compositions as set forth below". Further, Figures 3 through 5 and 12, present in the original application, demonstrated the improved stability of formulations containing the improved additive package in combination with known phosphate ester base stock formulations when compared to prior art functional fluid compositions.

6. On July 28, 1993 a continuation-in-part of the

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June 11, 1992 application was filed in my name, which incorporated additional experimental data into the specification to further demonstrate the patentability of the claimed functional fluid compositions. The additional data now appears in the '551 patent as Examples 12 and 13. In these Examples, Tables 11 and 12 show data on formulations 1 and 2, that supported the patentability of the broader invention by showing the unexpected increases in stability due to the additive package alone. In particular, in formulations 1 and 2 the improved additive package is combined with other known phosphate ester base stock formulations whereas the other compositions represent various embodiments of the preferred functional fluid compositions containing both the improved isoalkyl-substituted base stock and improved additive package of the claimed invention. In Table 11, formulations 1 and 2 show substantially improved thermal stability when compared to the prior art Skydrol® LD-4 formulation ('551 patent, Col. 37).

7. The error necessitating reissue of the '551 patent is that the entire scope of my invention was not claimed, since no claim of the '551 patent expressly recites a functional fluid composition comprising the additive package of the invention in combination with phosphate ester base stock compositions other than those recited as "preferred" in the '551 patent. This error occurred in part because I did not discuss with the attorney prosecuting the application, Wendell W. Brooks, that the parent application and the new data added to the CIP showed more than the arguments made to the PTO to

secure allowance of the then pending claims. As demonstrated above, on June 11, 1992, or at least on July 28, 1993, my invention, and its benefits, included not only the use of the additive package in combination with the substantially C<sub>4</sub> and C<sub>5</sub> isoalkyl-substituted phosphate ester base stocks as presently claimed but also in combination with other phosphate ester base stocks of the prior art. To correct this error, Claims 90 to 104 have been added to the foregoing application for reissue.

8. As demonstrated by the facts recited above and in the accompanying declarations of Kenneth D. Goetz and Wendell W. Brooks, the error occurred without deceptive intent.

9. I acknowledge the duty to disclose information that is material to the examination of the attached reissue application in accordance with 37 C.F.R. §1.56.

10. I hereby appoint the following as my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Joseph M. Fitzpatrick (Registration No. 17,398), Lawrence F. Scinto (Registration No. 18,973), William J. Brunet (Registration No. 20,452), Robert L. Baechtold (Registration No. 20,860), John A. O'Brien (Registration No. 24,367), John A. Krause (Registration No. 24,613), Henry J. Renk (Registration No. 25,499), Peter Saxon (Registration No. 24,947), Anthony M. Zupcic (Registration No. 27,276), Charles P. Baker (Registration No. 26,702), Stevan J. Bosses (Registration No. 22,291), Edward E. Vassallo (Registration No. 29,117), Ronald A. Clayton (Registration No. 26,718), Lawrence A. Stahl (Registration No. 30,110), Laura A. Bauer (Registration No. 29,767), Leonard P. Diana (Registration No. 29,296), David M. Quinlan (Registration No. 26,641), Nicholas N. Kallas (Registration No. 31,530), William M. Wannisky (Registration No. 28,373), Lawrence S. Perry (Registration No. 31,865), Robert H. Fischer (Registration No. 30,051), Christopher Philip Wrist (Registration No. 32,078), Gary M. Jacobs (Registration No. 28,861), Michael K. O'Neill (Registration No. 32,622), Bruce C. Haas (Registration No. 32,734), Scott K. Reed (Registration No. 32,433), Scott D. Malpede (Registration No. 32,533), Fredrick M. Zullo (Registration No. 32,452), Richard P. Bauer (Registration No. 31,588), Warren E. Olsen (Registration No. 27,290), Abigail F. Cousins (Registration No. 29,292), Steven E. Warner (Registration No. 33,326), Thomas J. O'Connell (Registration No. 33,202), Penina Wollman (Registration No. 30,816), David L. Schaeffer (Registration No.

32,716), Jack S. Cubert (Registration No. 24,245), Mark A. Williamson (Registration No. 33,628), Jean K. Dudek (Registration No. 30,938), Raymond R. Mandra (Registration No. 34,382), Dominick A. Conde (Registration No. 33,856), Pasquale A. Razzano (Reg. No. 25,512), John W. Behringer (Registration No. 23,086), Robert C. Kline (Registration No. 17,739), Mark J. Itri (Registration No. 36,171), William C. Hwang (Registration No. 36,169), Michael P. Sandonato (Registration No. 35,345), Jack M. Arnold (Registration No. 25,823), John D. Carlin (Registration No. 37,292), Daniel S. Glueck (Registration No. 37,838), Victor J. Geraci (Registration No. 38,157), Joseph W. Ragusa (Registration No. 38,586), Brian L. Klock (Registration No. 36,570), Anne M. Maher (Registration No. 38,231), William J. Zak, Jr. (Registration No. 38,668), Thomas D. Pease (Registration No. 35,317), Bruce M. Wexler (Registration No. 35,409), Robert S. Mayer (Registration No. 38,544), Errol B. Taylor (Registration No. 39,853), Matthew J. Golden (Registration No. 35,161), Mark J. Rosen (Registration No. 39,822), Sean W. O'Brien (Registration No. 37,689), Thomas M. Palisi (Registration No. 36,629), Dolores A. Moro-Grossman (Registration No. 33,972), T. Thomas Gellenthien (Registration No. 39,683), Douglas Sharrott (Registration No. 39,832), Gordon F. Sieckmann (Registration No. 28,667), and Jay H. Anderson (Registration No. 38,371).

Address all correspondence to:

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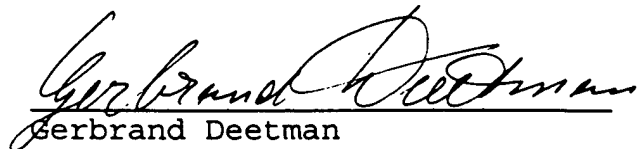
277 Park Avenue

New York, N.Y. 10172

Telephone No. (212) 758-2400

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that willful false statements or the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

November 4, 1997

  
Gerbrand Deetman

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gerbrand Deetman	§	
	§	
Reissue Application No. 08/966,425	§	
Filed: November 7, 1997	§	
	§	Group Art Unit: 1751
Patent No. 5,464,551	§	
	§	Examiner: C. Skane
Issued: November 7, 1995	§	
	§	Attorney Docket No.: SOLU:115/LUD
For: Stabilized Phosphate Ester-Based	§	
Functional Fluid Compositions	§	
	§	

**CORRESPONDENCE ADDRESS  
ELECTION UNDER 37 C.F.R. §§ 3.71 and 3.73  
AND POWER OF ATTORNEY**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Please direct all communications as follows:

**Craig M. Lundell  
ARNOLD, WHITE & DURKEE  
P. O. Box 4433  
Houston, Texas 77210-4433  
(713) 787-1400**

The undersigned, being Assignee of the entire interest in the above-identified application by virtue of an Assignment recorded in the United States Patent and Trademark Office as set forth below, hereby elects, under 37 C.F.R. § 3.71, to prosecute the application to the exclusion of the inventor(s).

The Assignee hereby revokes any previous Powers of Attorney and appoints:

Mark F. Wachter, Reg. No. 27,243; Kenneth D. Goetz, Reg. No. 32,696; John P. Foryt, Reg. No. 32,866; and William D. Bunch, Reg. No. 35,027, each an attorney with SOLUTIA INC., as its attorney so long as they remain with such company,

and

ARNOLD, WHITE & DURKEE





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REISSUE PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of: )  
U.S. Patent 5,464,551 :  
Issued: November 7, 1995 : Examiner: Not Yet Assigned  
Inventor: GERBRAND DEETMAN : Previous Examiner: Ogden, N.  
Assignee: Monsanto Company : Art Unit: Not Yet Assigned  
Reissue Control No.: Unknown : Previous Art Unit: 1105  
Filed: Herewith :  
For: STABILIZED PHOSPHATE :  
ESTER-BASED FUNCTIONAL :  
FLUID COMPOSITIONS : November 7, 1997

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

DECLARATION OF WENDELL W. BROOKS

Wendell W. Brooks, Esq., residing at 2157 Willow  
Forest Ct., Chesterfield, MO 63017, hereby declares as follows:

1. Between the years of 1975 and 1996 I was  
employed as a patent attorney by Monsanto Company ("Monsanto").  
I retired from Monsanto on April 1, 1996. I am a member of the  
Bar of the State of Missouri. I am also admitted to practice  
as an attorney before the United States Patent and Trademark  
Office, Registration No. 28,046.

2. I make this Declaration in support of  
Monsanto's application for reissue of U.S. Patent No. 5,464,551  
("the '551 patent"). It is my understanding that the '551  
patent is partially inoperative by reason of the inventor's

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claiming less than he had the right to claim with respect to phosphate ester-based hydraulic fluid compositions. As explained in the following paragraphs, the error arose without any deceptive intent.

3. I am the patent attorney who filed and prosecuted the application that ultimately issued as the '551 patent, U.S. Application No. 08/099,267, filed July 28, 1993 ("the CIP application"), which was a continuation-in-part of U.S. Application No. 07/897,189, filed June 11, 1992 ("the parent application"). The parent application was prepared by me based on information obtained from the inventor, Gerbrand Deetman. That application, as filed, was entitled "Functional Fluid", and contained 54 pages of description, including 11 Examples and 13 Figures. It demonstrated phosphate ester-based functional fluids that had improved thermal, hydrolytic and oxidative stability, and were useful as aircraft hydraulic fluids.

4. The parent application, as filed, contained 45 claims directed to fluid compositions generally comprising an improved phosphate ester base stock formulation plus an improved additive package. I recall that at the time the parent application was being prepared, Monsanto was developing improved phosphate ester-based functional fluids and was intent on obtaining patent protection for the potential commercial formulation(s). The 45 original claims of the parent application were thus directed to various formulations that would encompass those potential commercial functional fluid

compositions, which contained both the improved base stock formulations and improved additive packages.

5. It is my belief that at no time during prosecution of the application that issued as the '551 patent did applicant concede the patentability of, or forfeit the right to claim, the broader invention claimed in this reissue application, namely a functional fluid composition containing the improved additive package in combination with other, known phosphate ester base stock formulations. At no time during prosecution of the application were claims pending directed to the broader invention, such that no claims to the broader invention were ever subject to a rejection or restriction requirement.

6. After the parent application was filed, an Office Action was issued that rejected all 45 claims in view of several prior art references. I was advised at that time by the inventor and other technical advisors at Monsanto that additional test evidence was available to demonstrate the patentability of the claimed invention over the cited references. I was advised that the evidence showed comparative studies directed to iso- versus normal alkyl-substituents on the phosphate ester base stock compositions. The CIP application was filed to incorporate this new experimental evidence and to make other amendments to the specification and claims as a response to the Office Action.

7. A Preliminary Amendment filed with the CIP application added the experimental evidence, now appearing in

the '551 patent as Examples 12 and 13, and new claims 46-93. The Preliminary Amendment also amended portions of the specification and several of the original claims in order to expedite prosecution of the application. The title of the application was also changed at that time to "Stabilized Phosphate Ester-Based Functional Fluid Compositions".

8. The remarks in the Preliminary Amendment addressed the rejections from the Office Action in the parent application, stating that the invention showed a demonstrable and distinct advantage and unexpected results over conventional and existing fluid compositions. In particular, the results of tests, now appearing in the '551 patent as Tables 11 and 12, were described as showing the improved stability characteristics of the claimed fluid compositions. Specific reference was made to the increased thermal stabilities demonstrated by the compositions in Table 11 and the increased hydrolytic stabilities demonstrated in Table 12 over the compositions known in the prior art.

9. Although not emphasized to me by the inventor and technical advisors at the time, I now realize that in Table 11 compositions 1 and 2 represent functional fluid compositions containing the additive package of the invention and a base stock formulation that differs from the base stock of the presently claimed invention. The remaining compositions in Table 11 represent various embodiments of functional fluid compositions containing both the improved base stock and improved additive package of the claimed invention. I also now

realize that the results shown in Figures 3 through 5 and 12, included in the parent application, also demonstrate the advantages of the additive package of the invention combined with base stocks of the prior art.

10. An Office Action dated March 8, 1994 was issued in the CIP application, which rejected the pending claims in view of several cited references. After conferring with the inventor and other technical advisors I believed that substantial evidence existed in the record that demonstrated the novelty and non-obviousness of those claims based on the improved base stock formulation comprising substantially C<sub>4</sub> and C<sub>5</sub> isoalkyl substituted phosphate esters.

11. In an Amendment filed in response to the March 8, 1994 Office Action, the independent claims were amended to recite that the phosphate esters used as the base stock of the fluids were substantially C<sub>4</sub> or C<sub>5</sub> isoalkyl bonded to the phosphate moiety via a primary carbon. The remarks in that Amendment also distinguished the claimed invention from the cited art based on the differences demonstrated by the improved base stock that was part of the claimed functional fluid composition. Particular emphasis was not placed on the relative contribution of the additive package in the claimed compositions because the differences in the base stock formulation provided enough distinguishing characteristics to establish the patentability of the claimed compositions over the cited art.

12. Because it was not brought to my attention

and I did not independently analyze the data in the parent or CIP application beyond what was needed to obtain allowance of the pending claims, I mistakenly did not realize that the combination of the new additive package and old phosphate ester base stock was also patentable and part of the invention. As is clear from the above discussion, this error occurred without any deceptive intent. It is therefore my understanding that the '551 patent claims less than the inventor had a right to claim, and that the accompanying reissue application is being filed to correct that error.

13. I acknowledge the duty to disclose information that is material to the examination of the attached reissue application in accordance with 37 C.F.R. 1.56.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that willful false statements or the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

November 7, 1997

Wendell W. Brooks  
Wendell W. Brooks, Esq.

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REISSUE PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of: )  
U.S. Patent No. 5,464,551 :  
Issued: November 7, 1995 : Examiner: Not Yet Assigned  
Inventor: GERBRAND DEETMAN : Previous Examiner: Ogden  
Assignee: Monsanto Company : Art Unit: Not Yet Assigned  
Reissue Control No.: Unknown : Previous Art Unit: 1105  
Filed: Herewith :  
For: STABILIZED PHOSPHATE :  
ESTER-BASED FUNCTIONAL :  
FLUID COMPOSITIONS : November 4, 1997

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

DECLARATION OF KENNETH D. GOETZ

Kenneth D. Goetz, Esq. residing at 1634 Strecker Ridge Ct.,  
Wildwood, MO 63011, hereby declares as follows:

1. Between the years of 1991 and 1997 I was  
employed as a patent attorney by Monsanto Company  
("Monsanto"). On September 1, 1997 Monsanto spun off its  
chemical businesses into an independent corporate entity  
named Solutia Inc. ("Solutia"). At that time I became  
employed, and I continue to be employed, as a patent attorney  
for Solutia. I am a member of the Bar of the State of  
Missouri and the State of Oklahoma. I am also admitted to  
practice as an attorney before the United States Patent and  
Trademark Office, Registration No. 32,696.

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2. I make this Declaration in support of Monsanto's application for reissue of U.S. Patent No. 5,464,551 ("the '551 patent"). It is my understanding that the '551 patent is partially inoperative by reason of the inventor claiming less than he had the right to claim with respect to phosphate ester-based hydraulic fluid compositions containing a novel and non-obvious additive package. How and when the error was discovered are more fully described in the following paragraphs.

3. Starting in August 1996 I began a review of the '551 patent when a reference, cited in a corresponding pending foreign patent application, was brought to my attention by the attorney presently responsible for handling the prosecution of that foreign application. After reviewing the cited reference and the '551 patent file history, I determined that a request for reexamination was warranted in order to bring that reference to the attention of the U.S. Patent and Trademark Office. A request for reexamination was filed on behalf of Monsanto on July 2, 1997 and a Notice ordering reexamination was issued on September 3, 1997. A Notice Pursuant to 37 C.F.R. §1.565(a) is being filed in connection with the reexamination proceeding to notify the Patent and Trademark Office of this concurrent reissue proceeding involving the '551 patent.

4. While gathering information to be used to prepare the request for reexamination, I had several discussions with Monsanto scientist Dr. Terry C. Wolfe, now

also employed by Solutia. Dr. Wolfe submitted a Declaration in the reexamination proceeding in support of the patentability of the claims of the '551 patent. During our discussions about the description and experimental evidence in the '551 patent, several passages in the patent were discovered that evidenced the inventor's intent to claim, and experimental evidence to support, a broader invention than presently claimed. In particular the patent text at Column 6, lines 19-23 states:

[m]oreover, it has been found that the additive combinations of this invention are effective in enhancing the properties of base stock compositions previously known in the art or otherwise differing from the preferred base stock of the functional fluids of this invention.

Further, Table 1 and the accompanying text at Column 12, lines 34-35, states "[t]he additive combination is also effective in combination with other ranges of base stock compositions as set forth below". Table 1 shows a number of base stock formulations and notes that the C<sub>4</sub> or C<sub>5</sub> isoalkyl substituted phosphate ester base stocks are "preferred". Thus, we determined that the broader invention described but not claimed in the '551 patent was the combination of the additive package of the invention and phosphate ester base stock materials previously known in the art.

5. The experimental evidence supporting the patentability of this broader invention can be found, for example, in the '551 patent in Examples 12 and 13, which show the improved thermal, oxidative, and hydrolytic stability characteristics of those functional fluid compositions. In

particular, in Tables 11 and 12 in these Examples, compositions 1 and 2 represent functional fluid compositions containing the additive package of the invention and a base stock formulation that is not the preferred iso-alkyl substituted base stock of the invention. Also, Figures 3 through 5 and 12 show the advantages of the additive package combined with prior art base stock formulations as compared to prior art functional fluid compositions. These formulations represent examples of the broader invention where the improved additive package is combined with other phosphate ester base stock formulations, which are different than the preferred embodiment of iso-alkyl substituted phosphate ester base stock formulations. The remaining compositions noted in these tables represent various embodiments of functional fluid compositions containing both the improved base stock and improved additive package of the claimed invention.

6. Dr. Wolfe's Declaration in the reexamination proceeding, attached hereto as Exhibit A, contains further evidence of the patentability of the broader claims of this reissue application. In that Declaration, Dr. Wolfe analyzes the evidence in the '551 patent and presents results of additional fluid life tests on several phosphate ester-based functional fluid compositions conducted at different temperatures than those used in the examples in the patent. Dr. Wolfe states that the '551 patent's examples demonstrate that both the iso-alkyl phosphate ester base stock and the

additive package contribute to provide the functional fluids of the claimed invention (Wolfe Dec. ¶ 20). Dr. Wolfe also states that for the new test results reported in his Declaration, when all the test compositions contain the same trialkyl phosphate ester, a significant increase in the fluid life is demonstrated at 275°F when the claimed additive package is used compared to when a prior art additive package is used (Wolfe Dec. ¶ 19).

7. Therefore, it is my belief that the '551 patent claims less than the inventor had a right to claim. The accompanying reissue application is being filed to correct that error.

8. I acknowledge the duty to disclose information that is material to the examination of the attached reissue application in accordance with 37 C.F.R. 1.56.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that willful false statements or the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

November 4, 1997

  
Kenneth D. Goetz, Esq.